AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (original): A method for manufacturing horizontally continuously cast aluminum alloy rods, comprising:

a melting step of melting raw material for aluminum alloy to produce molten aluminum alloy;

a molten-metal treatment step of removing aluminum oxide and hydrogen gas from the molten aluminum alloy received from the melting step;

a horizontally continuously casting step of casting the molten aluminum alloy received from the molten-metal treatment step into horizontally continuously cast aluminum alloy rods;

a cutting step of cutting to a standard length the horizontally continuously cast aluminum alloy rods cast in the horizontally continuously casting step;

a conveying step of conveying the cut, horizontally continuously cast aluminum alloy rods;

a first straightening step of straightening bend of the conveyed, horizontally continuously cast aluminum alloy rods;

a peeling step of peeling skin portions of the straightened, horizontally continuously cast aluminum alloy rods;

a nondestructive inspection step of inspecting surface and internal portions of the horizontally continuously cast aluminum alloy rods having the casting surface portions peeled;

a sorting step of sorting horizontally continuously cast aluminum alloy rods judged nondefective based on results of the nondestructive inspection step; and

a packing step of packing the horizontally continuously cast aluminum alloy rods judged non-defective, with all steps being continuously performed.

- 2. (original): The method according to claim 1, wherein an average temperature drop rate of the molten aluminum alloy is set to 15% or lower as measured between the melting step and the horizontally continuously casting step.
- 3. (original): The method according to claim 1 or claim 2, wherein, in the melting step, tapping from a melting/holding furnace to the molten-metal treatment step is performed by a drop tapping method in which a surface of molten metal to be tapped is higher in level than a surface of tapped molten metal, or by a level-feed tapping method in which the surface of molten metal to be tapped is continuously connected to the surface of tapped molten metal.
- 4. (currently amended): The method according to any one of claims 1 to 3claim 1 or 2, wherein the melting step uses a plurality of melting/holding furnaces arranged in parallel in association with the molten-metal treatment step.
- 5. (currently amended): The method according to any one of claims 1 to 4claim 1 or 2, wherein, in the cutting step, at least one casting line in the horizontally continuously casting step is capable of being restarted.

- 6. (original): The method according to claim 1, further comprises a heat treatment step of heat-treating the horizontally continuously cast aluminum alloy rods between the cutting step and the nondestructive inspection step.
- 7. (original): The method according to claim 1, further comprises, between the conveying step and the first straightening step, an arraying step of arraying the horizontally continuously cast aluminum alloy rods by a conveyance method that combines conveyance of the rods in a lateral direction and conveyance of the rodse in a longitudinal direction.
- 8. (original): The method according to claim 1, wherein the nondestructive inspection step comprises a first nondestructive inspection step for surface inspection to control cutting conditions of the peeling step based on results of the first nondestructive inspection step and a second nondestructive inspection step for internal inspection to control casting conditions of the continuously casting step based on results of the second nondestructive inspection step.
- 9. (original): The method according to claim 8, wherein the first nondestructive inspection step is performed by at least one method selected from among an eddy-current inspection method for detecting a surface defect of a horizontally continuously cast aluminum alloy rod by use of eddy current, an image-processing inspection method for detecting a surface defect of a horizontally continuously cast aluminum alloy rod and a visual inspection method for visually detecting a surface defect of a horizontally continuously cast aluminum alloy rod, and the second nondestructive inspection step is performed by at least one method selected from

among an X-ray inspection method for detecting an internal defect of a horizontally continuously cast aluminum alloy rod by use of X-rays and an ultrasonic inspection method for detecting an internal defect of a horizontally continuously cast aluminum alloy rod by use of ultrasonic waves.

- inspection step combines internal inspection and surface inspection, the internal inspection is performed by at least one method selected from an X-ray inspection method for detecting an internal defect of a horizontally continuously cast aluminum alloy rod by use of X-rays and an ultrasonic inspection method for detecting an internal defect of a horizontally continuously cast aluminum alloy rod by use of ultrasonic waves, and the surface inspection is performed by at least one method selected from among an eddy-current inspection method for detecting a surface defect of a horizontally continuously cast aluminum alloy rod by use of eddy current, an image-processing inspection method for detecting a surface defect of a horizontally continuously cast aluminum alloy rod by means of processing an image of a surface of the horizontally continuously cast aluminum alloy rod, and a visual inspection method for visually detecting a surface defect of a horizontally continuously cast aluminum alloy rod.
- 11. (original): The method according to claim 1, wherein the nondestructive inspection step comprises a first nondestructive inspection step for inspecting surface portions of horizontally continuously cast aluminum alloy rods and a second nondestructive inspection step for inspecting internal portions of the rods, in which the first nondestructive inspection step

comprises an encircling eddy-current flaw detection step to pass the rods through a probe and a rotary eddy-current flaw detection step to rotate the probe in a circumferential direction of the rods, and further comprising a control step that comprises comparing a number of defects detected at the encircling eddy-current flaw detection step and the rotary eddy-current flaw detection step with a detection number judgment standard to obtain defect distribution groups, comparing the number of defects in each of the defect distribution group with a group judgment standard to obtain groups exceeding the group judgment standard and controlling, based on the groups exceeding the group judgment standard, molten-metal treatment conditions at the molten-metal treatment step, casting conditions at the horizontally continuously casting step and cutting conditions at the cutting step.

inspection step comprises a first nondestructive inspection step for inspecting surface portions of horizontally continuously cast aluminum alloy rods and a second nondestructive inspection step for inspecting internal portions of the rods, in which the first nondestructive inspection step comprises an encircling eddy-current flaw detection step to pass the rods through a probe and a rotary eddy-current flaw detection step to rotate the probe in a circumferential direction of the rods, and further comprising a control step comparing a number of defects detected at the encircling eddy-current flaw detection step and the rotary eddy-current flaw detection step with a detection number judgment standard to obtain defect distribution groups, comparing the number of defects in each of the defect distribution group with a group judgment standard to obtain groups exceeding the group judgment standard and controlling, based on the groups exceeding the group judgment standard, straightening conditions at the first straightening step.

- 13. (original): The method according to claim 6, further comprising a binding step of binding the horizontally continuously cast aluminum alloy rods before the heat treatment step and an unbinding step of unbinding the bound rods after the heat treatment step.
- 14. (original): The method according to claim 1, further comprising a binding step of binding the horizontally continuously cast aluminum alloy rods before the heat treatment step.
- 15. (original): The method according to claim 14, wherein the horizontally continuously cast aluminum alloy rods are stacked while supporting only opposite end portions of the rods.
- 16. (original): The method according to claim 1, wherein the conveying step has a retention function for temporarily retaining the horizontally continuously cast aluminum alloy rods.
- 17. (original): The method according to claim 16, wherein the retention function is such that the horizontally continuously cast aluminum alloy rods are conveyed laterally.
- 18. (original): The method according to claim 1 or claim 6, wherein the conveying step uses a slat conveyor.

Preliminary Amendment Based on PCT/JP2004/004289

- 19. (currently amended): Equipment for manufacturing horizontally continuously cast aluminum alloy rods, used in the method according to any one of claims 1 to 18claim 1.
- 20. (currently amended): A horizontally continuously cast aluminum alloy rod manufactured by the method according to any one of Claims 1 to 18 or the equipment according to claim 19 claim 1.
- 21. (original): The horizontally continuously cast aluminum alloy rod according to claim 20, wherein it has a diameter of 20 mm to 100 mm.
- 22. (currently amended): The horizontally continuously cast aluminum alloy rod according to claim 20 or claim 21, wherein it has a Si content of 7% to 14% by mass, an iron content of 0.1% to 0.5% by mass, a copper content of 1% to 9% by mass, a Mn content of 0% to 0.5% by mass and a Mg content of 0.1% to 1% by mass.